

CLAIMS

What is claimed is:

1. A method in a multi-processor based apparatus of dynamically reallocating processors to provide redundant functionality, the method including the steps of:
 - 5 detecting a fault in a first function having a first priority, said first function supported by a first processor;
selecting a second processor supporting a second function having a second priority; and
reallocating, responsive to said fault, said second processor to support said
 - 10 first function when a predetermined relationship corresponding to said first priority and said second priority exists.
2. The method of claim 1 further including a step of allocating said first processor to said second function upon recovery of said first processor from said
- 15 fault.
3. The method of claim 1 wherein said step of reallocating said second processor to support said first function occurs when said predetermined relationship includes said first priority exceeding said second priority.
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4. The method of claim 3 wherein said relationship further corresponds to a type of said fault and said step of reallocating occurs immediately when said type of said fault is major.

5. The method of claim 3 wherein said relationship further corresponds to a type of said fault and said step of reallocating is delayed for a predetermined time sufficient to allow for a possible recovery of said first processor from said fault when said type of said fault is minor.

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6. The method of claim 5 wherein said step of reallocating occurs immediately whenever said fault has repeated a predetermined number of times.

7. The method of claim 3 wherein said second processor is selected from a
10 multiplicity of second processors supporting a multiplicity of said second functions and wherein said step of reallocating occurs when said predetermined relationship further corresponds to having said multiplicity of said second processors satisfy a threshold number of said second processors.

15 8. The method of claim 7 further including a step of selecting a third processor supporting a third function having a third priority that exceeds said second priority but is less than said first priority and reallocating said third processor to support said first function when said multiplicity of said second processors does not satisfy said threshold number of said second processors.

9. A multi-processor based apparatus arranged and constructed to dynamically reallocate processors to provide redundant functionality, the apparatus comprising in combination:

a first processor supporting a first function having a first priority;

5 means for detecting a fault in said first function;

a second processor supporting a second function having a second priority; and

means for reallocating, responsive to said fault, said second processor to support said first function when a predetermined relationship corresponding to said first priority and said second priority exists.

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10. The apparatus of claim 9 wherein said first processor is allocated to said second function upon recovery of said first processor from said fault.

11. The apparatus of claim 9 wherein said reallocating said second processor to

15 support said first function occurs when said predetermined relationship includes said first priority exceeding said second priority.

12. The apparatus of claim 11 wherein said predetermined relationship further corresponds to a type of said fault and said reallocating said second processor occurs

20 immediately when said type of said fault is major.

13. The apparatus of claim 11 wherein said predetermined relationship further corresponds to a type of said fault and said reallocating said second processor is delayed for a predetermined time sufficient to allow for a possible recovery of said first processor from said fault when said type of said fault is minor.

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14. The apparatus of claim 13 wherein said reallocating said second processor occurs immediately when said fault has repeated a predetermined number of times.

10 15. The apparatus of claim 11 wherein said second processor is selected from a multiplicity of second processors supporting a multiplicity of said second functions and wherein said reallocating said second processor occurs when said predetermined relationship further corresponds to having said multiplicity of said second processors satisfy a threshold number of said second processors.

15 16. The apparatus of claim 15 further including a third processor supporting a third function having a third priority that exceeds said second priority but is less than said first priority and reallocating said third processor to support said first function when said multiplicity of said second processors does not satisfy said threshold number of said second processors.

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17. A base station controller (BSC) for controlling base stations and inter-coupling the base stations and a network switch in a wireless phone network, the base station controller being multi-processor based and arranged and constructed to dynamically reallocate processors to provide redundant functionality within the BSC,

5 the BSC comprising in combination:

a mobility manager for handling all base station resource assignments and a transcoder for supporting all calls, said transcoder further including;

means for inter-coupling the base stations and the network switch;

10 a first operations and maintenance processor (OMP) for providing control and system level functions for the transcoder, said control and system level functions having a first priority;

means for detecting a fault in said control and system level functions;

15 a call processing processor (CPP) for managing transcoder resources that are assigned by said OMP to establish and handoff calls, said managing having a second priority; and

means for reallocating, responsive to said fault, said CPP to support said control and system level functions when a predetermined relationship corresponding to said first priority and said second priority exists.

20 18. The BSC of claim 17 wherein said reallocating said CPP to support said control and system level functions occurs when said predetermined relationship includes said first priority exceeding said second priority and further corresponds to a type of fault, said reallocating said CPP occurring immediately when said type of said fault is major.

19. The BSC of claim 17 wherein said reallocating said CPP to support said control and system level functions occurs when said predetermined relationship includes said first priority exceeding said second priority and further corresponds to a type of fault, said reallocating said CPP is delayed for a predetermined time sufficient to allow for a possible recovery of said first OMP from said fault when said type of said fault is minor unless said fault has repeated a predetermined number of times.

20. The BSC of claim 17 wherein said CPP is selected from a multiplicity of CPPs for said managing a multiplicity of said transcoder resources and wherein said reallocating said CPP occurs when said predetermined relationship includes said first priority exceeding said second priority and further corresponds to having said multiplicity of said CPPs satisfy a threshold number of said CPPs.

21. The BSC of claim 20 further including a front end processor (FEP) for inter-coupling said mobility manager with the base stations and said first OMP, said inter-coupling having a third priority that exceeds said second priority but is less than said first priority and means for reallocating further for reallocating said FEP to support said control and system level functions when said multiplicity of said CPPs does not satisfy said threshold number of said CPPs.